

Alumni Registration & Updates

The Department of Civil and Environmental Engineering is always interested in how our alumni are doing. We hope you will take time to send your updates to jmueller@lsu.edu or, if you prefer, you can "snail mail" them to

Department of Civil and Environmental Engineering
Louisiana State University
3418 Patrick Taylor Hall
Baton Rouge, LA 70803-6405

Please include basic information such as your full name, year of graduation, degree, mailing address, email address, telephone number, company, and your title/position. For your update, please include information on your recent professional and personal developments, along with a high-quality photo if available.



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Message from the Chair



Though we've come to a close of another academic year, the Department continues its success and achievements. I would like to thank you all for a very successful year in which our achievements were particularly impressive.

The Department would first like to congratulate our students on their recent awards and accomplishments. The Spring 2010 Commencement recognized 114 graduates from the undergraduate Civil Engineering program and 8 graduates from the undergraduate Environmental Engineering program. Of these graduates, several received significant awards in recognition for their outstanding academic performance. Holly Elizabeth Samaha, who received her BS in Environmental Engineering this Spring, was both a University Medal Recipient in recognition for graduating with a perfect 4.0 GPA and the McLaughlin Medalist. Mark Dunn, who received his undergraduate degree in civil engineering, was one of two recipients of the Donald W. Clayton Award in recognition of their extraordinary character, scholastic achievement, and leadership in the College of Engineering. Melissa Young, LSU Civil Engineering Senior, was selected to receive the Distinguished Civil Engineering Senior Award from the Louisiana Section of the American Society of Civil Engineers. Adam Lodygowski, who received his PhD in Civil Engineering in May 2010, received the 2010 Distinguished Dissertation Award at LSU for Science, Technology, Engineering and Mathematics for his dissertation titled "Friction and Wear at Elevated Velocities".

A Foundation of Excellence Program

Student Chapters in the Department of Civil and Environmental Engineering, as always, have been very active this year. The ASCE Student Chapter received impressive scores at the 2011 Deep South Regional Competition, with the Steel Bridge team placing 3rd overall and the Concrete Canoe team placing 2nd overall. Environmental Engineering students from EVEC 4150 and 4151 capstone design classes attended the WERC International Design Contest in Las Cruces, New Mexico and won an award for Best Design with their stand alone, non-fossil based energy source for a water disinfection/treatment system to be used for a small, remote community. Joining our existing student groups is the LSU Student Chapter of the Institute of Transportation Engineers, which is off to a very impressive start.

The Department's faculty serves as our foundation and their hard work and dedication are unwavering. Each issue of our newsletter brings to you Faculty Highlights, featuring their many accomplishments and this issue is no exception. Of special note, Dr. Q. Jim Chen, Associate Professor in CEE and an adjunct professor at the Center for Computation and Technology (CCT), is the Principal Investigator of a \$1.35 million award that LSU recently received to develop the Northern Gulf Coastal Hazards Collaboratory (NG-CHC). The new Collaboratory will create cyberinfrastructure tools and services and demonstrate three modeling environments that allow civil engineers and coastal scientists to access and use data from observational data systems located at university, government and private industry in the Northern Gulf Coast.

Continued Page 2



Student Highlights

In the spirit of community outreach CEE Associate Professor Dr. Khalid Alshibli, along other researchers from both LSU and Southern University, assisted a group of 5th graders from the local Copper Mill Elementary school with developing an experiment, as part of the Student Spaceflight Experiments Program (SSEP), that was chosen for placement on the recent Space Shuttle Endeavour's final flight. Also, serving as an example of a successful partnership with industry, a recent collaboration between the College of Engineering and PacTec, Inc., one of the leaders in the engineered waste packaging industry, yielded fruitful results as Drs. Steve C.S. Cai and Michele Barbato were able to lend their expertise and resources in fluid dynamics to test the company's new flexitank product.

Also, it is with great pleasure to announce that the Department has inducted three outstanding individuals into our CEE Hall of Distinction. The 2010 inductees are Professor Shahram Sarkani (The George Washington University, Department of Engineering Management and Systems Engineering) and Secretary of the Louisiana Department of Transportation and Development Sherri Hammond LeBas, both



Lodygowski Rcvs Distinguished Dissertation Award

Adam Lodygowski (PCE 2010) was selected to receive the 2010 Distinguished Dissertation

Award at LSU for Science, Technology, Engineering and Mathematics for his dissertation titled "Friction and Wear at Elevated Velocities". The Distinguished Dissertation Awards, sponsored by the LSU Alumni Association, recognize two distinguished dissertations annually: one in the arts, humanities and social sciences and one in science, engineering and technology. Awardees received \$2,000 along with a certificate and were recognized at a reception held in April.

Dr. Lodygowski is currently working as an Assistant Professor in the Department of Civil and Environmental Engineering at Poznan University of Technology, Poznan, Poland. He completed his MS. Degree at the University of Hannover, Germany. Dr. Lodygowski joined the Ph.D. program at Louisiana State University in August of 2006 under Boyd Professor Voyiadjis' supervision and received his Ph.D. degree in May of 2010. Mr. Lodygowski has been involved in wide spectrum of different research topics skillfully spanning experimental studies with the theoretical

CEE alum who have demonstrated engineering excellence in their careers. The 2011 inductee is Dr. Song-kai Yan (Shaw Environmental and Infrastructure, Inc.). Regrettably, shortly after the banquet held to recognize these inductees, Dr. Yan passed away. Not only was Dr. Yan a successful engineer but also a CEE alum who maintained a strong connection to the Department through his long-standing appointment on the CEE External Advisory Board and also as a frequent adjunct professor. His dedication to the Department will surely be missed but never be forgotten.

In closing, the Department would like to sincerely thank all who have participated in the Forever LSU Campaign. Without your support we would find it difficult, especially during these challenging times, to not only maintain the level of academic excellence for which we have achieved but to continue on our path of becoming a comprehensive department that encompasses excellence in undergraduate and graduate education, research, and public service.

Dr. George Z. Voyiadjis, Boyd Professor, Chair, And Bingham C. Stewart Distinguished Professor

and numerical approach. He has published in several prestigious journals and conference proceedings in the field of tribology, structural engineering and engineering mechanics.

Dr. Lodygowski was successful in conducting an interdisciplinary research; reflecting a combination of concepts, methods, and principles that span over several areas of solid mechanics, computational mechanics, materials science, mathematics, structures, and computer science. His Ph.D. dissertation entitled "Friction and Wear at Elevated Velocities" explored an important and under-researched topic on the so-called Multiscale Modeling of Materials subjected to high velocity friction. Such models intend to bridge the representations of events that occur at two or more scales (e.g., nano, meso, micro, and macro). This kind of research will have a profound implications in both scientific knowledge and a wide range of technologies in most industries, healthcare, conservation of materials and energy, and biology. Thus, the dissertation of Dr. Lodygowski directly supports the realization of the State of Louisiana long-term economic goals that lies through information technology, micro-manufacturing, and biomedical technology.

YES, count me in!

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John James Audubon Bridge Opens for Traffic

Faculty and students from the Department of Civil and Environmental Engineering (CEE) were involved in the John James Audubon Bridge Project through a research effort to investigate a new continuity detail for prestressed concrete girder bridges. The project was initiated by Hussein Ghara and Paul Fossier from LA DOTD Bridge Design Section and was sponsored by the Louisiana Transportation Research Center (LTRC). The research team was led by Drs. Ayman Okeil and Steve Cai, both in the Department of Civil and Environmental Engineering, who used a structural health monitoring approach to assess the performance of the new detail in a segment of one of the bridges on the New Roads

side of the Mississippi River. Data collected for a period of over two years was used to draft a report with the findings, which is currently in the review phase by LTRC/DOTD. Several civil engineering students were involved in the project including Tanvir Hosain (a CEE graduate student pursuing his PhD on the subject) and Veeravenkata Murthy Chelole (MCE 2011). Several others helped with the load test that was conducted in August 2010 including Archana Nair, Miao Xia, Xuan Kong, Fenghong Fan, Bo Kong and Visiting Scholar Yang Liu, while others helped with the installation of the embedded sensors (Dr. Yilmaz Bingol PCE 2008).

Construction of the John James Audubon Bridge began in May 2006. The bridge is a project in the state Transportation Infrastructure Model for Economic Development (TIMED) program. Audubon Bridge Constructors is a joint venture of Flatiron Corporation, Granite Construction and Parsons Transportation Group. The \$409 million bridge spans a third of a mile over the Mississippi River, connecting West Feliciana and Pointe Coupee parishes. On May 5, 2011 (a month early) the bridge opened for traffic. Though some work remains to be done, the project is expected to be completed by the end of May.

Department in Focus

Dr. Q Jim Chen Works to Develop the Coastal Hazards Collaboratory in the Northern Gulf Coast

Dr. Q. Jim Chen, Associate Professor in the Department of Civil and Environmental Engineering (CEE) and an adjunct professor at the Center for Computation and Technology (CCT), is the Principal Investigator of a \$1.35 million award that LSU recently received to develop the Northern Gulf Coastal Hazards Collaboratory (NG-CHC).



Article courtesy of Casey Arceneaux, College of Engineering Assistant Director of Communications

Funded by the National Science Foundation, researchers in Louisiana, Mississippi, and Alabama are leveraging their unique partnerships, proximity, and significant prior investments in cyberinfrastructure to advance science and engineering of coastal hazards of the Northern Gulf Coast. This consortium is aimed to catalyze collaborative research via enhanced cyberinfrastructure that will potentially address problems such as engineering design, coastal system response, and risk management of coastal hazards; and to enhance the research competitiveness of the Gulf region.

"This NSF award provides a unique opportunity for the coastal engineering program at LSU, which allows engineering graduate students and post-docs to work closely with earth system and computer scientists at 10 universities in Louisiana, Mississippi and Alabama on the modeling and mitigation of coastal hazards," said Chen. "Close collaborations

among coastal engineers, coastal oceanographers and computer scientists are the key to the success of this project."

The LSU consortium members are Q. Jim Chen, Director of the Coastal Engineering Research and Education Collaboratory at CEE; Patrick Hesp, Professor of Geography & Anthropology; Honggao Liu, Deputy Director of CCT; and Steven Brandt, Research Consultant at CCT.

The new Collaboratory will create cyberinfrastructure tools and services and demonstrate three modeling environments that allow civil engineers and coastal scientists to access and use data from observational data systems located at university, government and private industry in the Northern Gulf Coast. Close collaborations among coastal engineers, earth system scientists, and computer scientists are the key to the success of this project.

LSPS District 6 and Jack Laws Donate Funds for Software



District 6 of the Louisiana Society of Professional Surveyors (LSPS), at a recent membership meeting, voted to donate \$3,788.00 of district funds to LSU,

along with a \$1,000.00 match from Jack Laws (a Professional Surveyor and District 6 member) for the purchase of software to aid in the surveying curriculum at LSU. "This donation aligns with the LSPS's mission of promoting and enhancing the profession and education of surveying in the state," says LSPS District 6 chairman Taylor M. Gravois.

The software being purchased, iWitness (c), is a photogrammetric software package that performs the calibration of digital cameras (including cell phones), as well as fully analytical phototriangulation analysis. It is used in close-range applications for both scientific research and forensic practice. LSU has used limited demonstration versions of iWitness (c) for several years, and this will allow greater flexibility for students in their photogrammetric analysis and design projects in CE 4500.

The LSPS was established in 1961 to enhance the status of the land surveying profession. There are nine districts in the state of Louisiana with East Baton Rouge Parish being located in District 6. For information about the society visit www.lsp.net.

Student Highlights



ASCE Student Chapter Updates

At their annual banquet, the LSU ASCE Student Chapter wrapped up the Fall 2010 semester with the election of officers for 2011:

President – Josh Bradley
Vice President – Andrew Cook
Secretary – Brittany Alexander
Treasurer – Doug Ferrara
Webmaster - Philip Goppelt
Meeting Coordinator- Melissa Young
Community Service Chair – Lesley Cates
Fundraising Chair - Kristina Galindo

Officers Josh Bradley and Melissa Young attended the 2011 ASCE Workshop for Student Chapter Leaders in Portland, Maine in January. Despite braving the freezing cold weather, both officers came away with many ideas on improving the chapter for the future. Josh and Melissa were able to meet student leaders from different schools across the Eastern region. The workshop allowed student leaders from each school to share ideas and receive input on chapter leadership.

During the annual Engineering week in February the chapter was able to participate by going to local schools to promote the field of civil engineering. Officers Josh Bradley and Brittney Alexander along with Dr. Samuel Amoroso, Adam Smith visited Ms. Green's chemistry class at Istrouma High School.

In late March, the student chapter participated in the 2011 Deep South Regional Competition, which was hosted this year by Mississippi State University. LSU ASCE Steel Bridge and Concrete Canoe teams participated in this year's events.

The LSU Steel Bridge Team began preparations for the competition last semester. After the design was finalized, attention was turned to the construction of the bridge. The team spent many hours in the shop fabricating, welding, and constructing the bridge in order to be prepared for the regional competition. During construction phase, the team greatly benefited from the assistance of Ian Bizette (Construction Management major) with the welding of the bridge.

Student Highlights

At the competition, the team competed against nine schools. Each of the team's bridges were judged on aesthetics, construction time, number of builders, stiffness, and total weight. The LSU team placed 3rd in aesthetics, 2nd in construction time, 4th in stiffness, and 1st in total weight. Overall the team placed 3rd in this year's competition. A special thanks goes out to sponsors Volkert Engineering, along with faculty advisor Dr. Ayman Okeil, CEE staff member David Robertson, CEE staff member Mrs. Janet Labatut, and Kirby Hebert. Participating members included, David Zieglar (captain), Adam Milling, Mark Genre, Jacob Trowbridge, Chris Sciortino, Morgan Hidalgo, and Joshua Brown.

The Concrete Canoe team began preparations for the competition with fundraising. The team would like to thank sponsors: the Louisiana Research Transportation Center, CSRS, Big River Ind., Hebert Engineering, Fugro Consultants, Aucoin and Assoc. Focus was then directed towards the canoe itself, starting by the team constructing a 20 ft table on wheels as a work area. Next was the concrete mix, which was based on optimum performance (light weight and strength). This mix was then poured into a male mold and allowed to cure for a few weeks.

Distinguished Civil Engineering Senior Student Award



Melissa Young, LSU Civil Engineering Senior, was selected to receive the Distinguished Civil Engineering Senior Award from the Louisiana Section of the American Society of Civil Engineers. This award is given out annually, with each local ASCE chapter selecting a student from

their region. Award recipients are selected based on their active participation in and dedication to their ASCE student chapter, along with being outstanding

Students Receive Louisiana Asphalt Technology Scholarships

Six civil engineering students, Matthew Stewart, Corey Mayeux, Candace Wright, Adam Catanzaro, Brittany Alexander, and Anthony Zumo, were recently named the recipients of the 2010-2011 Louisiana Asphalt Technology Scholarships that are funded by the NAPA Research and Education Foundation and the Louisiana Asphalt Pavement Association. Member companies that sponsored these scholarships include Barriere Construction Company, New Orleans, R. E. Heidt Construction Company, Lake Charles, Coastal Bridge Company, Baton Rouge, Asphalt Products Unlimited, Baton Rouge, and Blacklidge Emulsions, Gulfport, MS.

Once set, the team sanded the outside for smoothness. The final touches were painting and creating a display for the canoe.

At the competition, the Concrete Canoe team also competed against nine schools. Teams were judged on the final product (aesthetics, ability to float, etc), coed races (5 total), presentations, and a design paper. The LSU Concrete Canoe team placed 2nd overall, 1st place in the men's endurance race, 2nd place in the women's endurance race, 3rd place in the men's sprint, 1st place in the women's sprint, and 4th place in the coed sprint. They also received 2nd place in the final product display. Participating members included Aleksandra Simicevic (captain), James Parker (co-captain), Donovan Duffy, Joe Ory, Lesley Cates, Kristina Galindo, and Sarah Cochran.

The ASCE Student Chapter was also privileged with several guest speakers at their annual chapter meetings. Speakers thus far for this semester have included: Sam Amoroso (Engensus), Brant Richard (Stanley Consultants), Lee Forbes (KBR) and Brandon Hays (Concrete and Aggregate Association of Louisiana). Meetings were well attended.

students academically. Melissa, pictured with Kathy J. Caldwell, President of ASCE National, was presented a \$500 award and a plaque at the LASCEs Spring Conference Award Banquet on April 15th, 2011 at the Cajun Dome in Lafayette.

Melissa has been a member of the LSU ASCE Student Chapter since August of 2007, served as chapter President in 2010 and is now serving as meeting coordinator. She has also been a member of Chi Epsilon since November 2008, serving as Secretary from November 2009 to April 2011.

This scholarship program was developed in an effort to encourage young men and women to choose asphalt technology courses as a part of their curriculum. An example of partnership among academia, government and industry, this scholarship is intended to not only benefit the asphalt industry by providing a trained workforce in asphalt technology, but also benefit the individuals who choose careers in the public sector at the federal, state, or municipal level. The scholarships, each \$2000, are presented yearly to college sophomore, juniors or seniors who are U. S. citizens and already enrolled in a full time civil engineering curriculum.

Department in Focus

budget and works closely with federal, regional and local officials to ensure the citizens and businesses of Louisiana have the best infrastructure possible.



Dr. Song-kai Yan, the 2011 inductee, received his bachelor's degree in 1964 from the Hydraulic Structure Design & Construction Department of Beijing College of Hydraulic Engineering and his master's degree in civil engineering from Colorado State University in 1983. After over two decades of engineering experience, Dr. Yan

came to LSU to pursue his Ph.D. degree in civil engineering which he received in 1989. While in the Ph.D. program, Dr. Yan began working with Woodward-Clyde Consultants as a Project Engineer, where he remained after graduation until 1991. He then went on to IT Corporation which, in 2002, became part of Shaw Environmental and Infrastructure, Inc. Dr. Yan remained with Shaw from then on serving as a Senior Staff Consultant and Director of Hydrology/hydraulics.

Since his graduation from LSU, Dr. Yan remained a very active part of the CEE Department in

various capacities. He served as instructor of various courses, including Water Distribution and Wastewater Collection and Hydrology. Dr. Yan was also a long-standing member of the CEE External Advisory Board.

Shortly after the induction banquet, Dr. Yan passed away after a year-long battle with cancer. He was a dedicated alum who was very actively involved in the CEE Department. He was loved by students and very well respected by faculty and staff alike. Our thoughts and prayers are with his family.





CEE Welcomes Three Hall of Distinction Inductees

The LSU Department of Civil and Environmental Engineering (CEE) is pleased to announce that it has welcomed three new members into its Hall of Distinction on February 25, 2011 during a banquet held at the Lod Cook Alumni Center. The 2010 inductees are Professor Shahram Sarkani and Secretary of the Department of Transportation and Development Sherri Hammond LeBas. The 2011 inductee is Dr. Song-kai Yan. In attendance were the inductees, their families and colleagues, faculty and staff of the department, members of the CEE Hall of Distinction and friends of the Department.



Professor Shahram Sarkani, 2010 inductee, earned his bachelor's (1980) and master's (1981) degrees in civil engineering from Louisiana State University, and his Ph.D. (1987) in civil engineering from Rice University. He joined the faculty of The George Washington University in Washington, D.C., in 1986, where he chaired

the Department of Civil, Mechanical, and Environmental Engineering (1994-1997); served as Interim Associate Dean for Research and Development for the School of Engineering and Applied Science (1997-2001); and since 2001 has been Professor of Engineering Management and Systems Engineering, and Faculty Adviser and Academic Director of Off-Campus Programs, in the Department of Engineering

ENGINEERING EXCELLENCE

Management and Systems Engineering (EMSE). In this capacity Professor Sarkani designs, negotiates, and administers off-campus graduate certificate, Master of Science, and Doctor of Philosophy degree programs on-site for such sponsors as ARINC, Huntington Ingalls, Lockheed, NGA, NSWG, Orbital Sciences, SAIC, Taiwan Air Force, and U.S. Army Corps of Engineers. Programs of study include systems

engineering, information security, homeland security, and engineering management. He has shepherded EMSE's off-campus growth from 300 to over 1,000 students. Professor Sarkani is the author of about 150 technical publications. The American Society of Civil Engineers awarded him the Walter L. Huber Civil Engineering Research Prize (1999).



Sherri H. LeBas, also a 2010 inductee, received her bachelor's degree in civil engineering from LSU in 1985. She is a professional

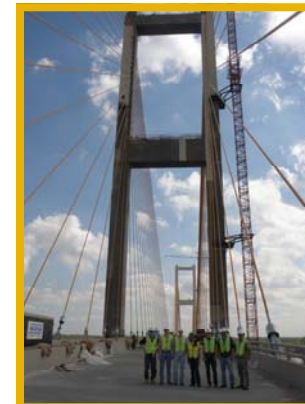
civil engineer with more than 25 years in state service in Louisiana; working at the Department of Transportation and Development (DOTD) as well as the Division of Administration. In June 2010, LeBas was appointed as Secretary of the Louisiana Department of Transportation and Development by Governor Bobby Jindal and is the first female to hold this position. As Secretary of LaDOTD, LeBas is responsible for a more than \$1.6 billion



EVEG Students Attend WERC International Design Contest

A team of LSU Environmental Engineering students from EVEG 4150 and 4151 capstone design classes won an award for Best Design at the WERC International Design Contest in Las Cruces, New Mexico. The Task 7 team focused on Clean Energy Water Disinfection for Small, Remote Rural Communities and consisted of Evan Dart, Trent Key, Grant Gutierrez, Justin Wagner and Trent Marcelle. Task 7 team members, competing against ten other schools, had to design and demonstrate a stand alone, non-fossil based energy source for a water disinfection/treatment system to be used for a small, remote community. The team plans to reassemble the device back at LSU for exhibiting in the College of Engineering. All three participating teams did incredibly well and were very competitive. Other competitors were Holly Samaha, Brooke McCoy, Scott Villar, Laura Sabolyk, Whitney Godwin, Rachel Truitt, and Jacques Cancienne.

WERC's Environmental Design Contest is a unique event that brings together industry, government and academia in the search for improved environmental solutions. Held annually since 1991 at New Mexico State University in Las Cruces, New Mexico, the contest draws hundreds of college students from throughout the United States and around the world. The student teams design solutions for real-world problems while developing fully operational bench-scale solutions that are presented to panels of judges comprised of environmental professionals. The teams prepare four different presentations: written, oral, poster and bench-scale model.



On March 21, 2011, the CE 4460 (Design of Bridges) class visited the John James Audubon Bridge in New Roads/St. Francisville, Louisiana. The class, along with adjunct instructor Paul Fossier, toured the cable stay main span and received information on the design and construction of the bridge for Louisiana's first Design Build Transportation project. The bridge was recently opened to traffic on May 5 and is now the longest cable stayed bridge in the western hemisphere. The Spring 2011 class also completed the final design and plans of another bridge project for the class that started with the conceptual design for CE 4750 in the Fall 2010 for the senior capstone design project.<

Grad Student Mark Dunn Selected for Clayton Award

The Donald W. Clayton Engineering Excellence Award for Outstanding Undergraduate Students was established in 1959 through an endowment by LSU graduates Donald W. and Gloria Pichon Clayton. The award recognizes students who have expressed exemplary character, scholarly accomplishment, leadership and have served as a good role model and ambassador for the College of Engineering. Recipients receive a one-time stipend of \$5,000 and a plaque. This year, two awards were given to undergraduate students in the LSU College of Engineering. Civil Engineering senior, Mark Dunn, was one of the two selected to receive the award. After Spring graduation, Mark plans to continue his studies here at LSU by pursuing a Master's Degree in Civil Engineering with a focus on Structural Engineering.

Institute of Transportation Engineers Student Chap

The Institute of Transportation Engineers (ITE) -Louisiana State University Student Chapter is active once again. On Thursday, February 3rd, 2011 the LSU student chapter of ITE was formed. Since its inception, the chapter has held two meetings and selected chapter officers:

- | | |
|------------------------------------|-------------------------------|
| Benjamin Hartman – President | Thomas Montz – Vice President |
| Sydney Jenkins – Treasurer | Danhong Cheng – Secretary |
| Dr. Sherif Ishak – Faculty Advisor | |

The chapter has also participated in the traffic bowl, held February 24th at the Louisiana Transportation Research Center (LSU campus). During the event, the ITE student chapter had the privilege of competing alongside other schools from the Deep South ITE and had a great time. The group also edged out the University of Louisiana at Lafayette for the title of state champions!

Recruitment for the chapter is underway and full force. Membership is free and easy! To become a member, go to www.ITE.org and apply online. Once finished, the website will give you a membership number (remember to write it down!). Email your full name & membership number to Benjamin Hartman at bhartm3@lsu.edu.

The chapter is off to a great start and growing fast. Future meetings will feature guest speakers and will provide not only an environment for learning but also for students and companies to network and share interests. For more information about the chapter, contact Benjamin Hartman (bhartm3@lsu.edu).

Zachary Autin Receives Scholarship Award

Zachary Autin, MCE student under the advisement of Dr. Khalid Alshibli, attended the International Association of Foundation Drilling (ADSC) annual meeting in New Orleans where he was presented with their "ADSC Graduate Studies Scholarship." This scholarship pays \$1500 a semester for Fall 2010 and Spring 2011 and is awarded annually to 14 graduate students in Geotechnical Engineering from all across the nation.

The ADSC is an organization of contractors, manufacturers, suppliers, and engineers in the foundation drilling and anchored earth retention system industries. ADSC's goals for industry improvement recognize the need to invest in education and research and thus the Industry Advancement Fund was formed in 1986. Over the past twenty-four years, 261 scholarships have been awarded. These scholarships are intended to stimulate the involvement of highly qualified engineers in the industry, and the use and research of drilled shafts and anchored earth retention systems.

The Passing of Nathan Carse (MCE 2007)

We are sad to report that Specialist Nathan Carse, who received his Master's in Civil Engineering in 2007, was killed in an explosion in Afghanistan in February of this year. Specialist Carse, a native of Harrod, Ohio, was only 32 years old and is survived by his mother and two sisters. Our condolences go out to his family and friends and we thank him for his service and sacrifice.

"We look forward to maintaining a long-term relationship with PacTec as they continue to refine their flexitank product and develop new products," said Cai.

The CoE remains steadfast in positively impacting the lives of Louisiana citizens by utilizing the College's expertise to better engage with local needs through industry, government and private groups.

"The College is committed to serving as a primary engineering resource for education, research and innovation. We understand

that as a College in Louisiana's Flagship University, we serve as a proactive and strategic partner for all industries locally, nationally and even globally," said Schram. "Our relationship with PacTec is a perfect example of how the LSU College of Engineering can serve as an outreach arm into the community to provide value in utilizing our strength in engineering expertise."

PacTec is currently engaged with LSU College of Engineering for phase two of the flexitank research partnership.

"LSU has proved to be an invaluable resource to PacTec, and we are lucky to have them, basically, in our backyard," said Rice.

For more information about PacTec, Inc. visit www.pactecinc.com For more information about the research and economic development opportunities available in the College of Engineering, visit www.eng.lsu.edu/development.

Article courtesy of Cassie Arceneaux, College of Engineering

Researchers Assist Elementary Students with SSEP Experiment



Student Spaceflight Experiments Program (SSEP) has chose an experiment designed by a team of six 5th grade students from the Zachary Community School District (ZCSD) for a place on the Space Shuttle Endeavour's final flight (STS-134), expected to launch late spring. This group of Copper Mill Elementary fifth-graders, taught by Circe Bridges, designed an experiment to examine the effect of weightlessness on the development of muscle cells in mice. On May 18, the students visited LSU to showcase

their winning experiment . Dr. Alshibli received a research announcement from NASA that was soliciting proposals from K-12 schools nationwide to fly experiments on the last (historical) Shuttle mission. Seeing this as an exciting community outreach opportunity, Dr. Alshibli responded and offered his assistance to any Louisiana school system wanting to submit a proposal. After being contacted by Tammy Wood of the Zachary school system, Dr. Alshibli scheduled visits to two Zachary schools in November of 2010 to speak to students about his experiments in the space shuttle. Those visits set the ball rolling and eventually led to the initiation of the project with the Copper Mill Elementary students. Several LSU and Southern University scientists, including Dr. Khalid Alshibli who is an Associ-

ate Professor in the Department of Civil and Environmental Engineering at LSU, assisted on this project.

Funding for this program is being provided by the ZCSD and a grant awarded by the Louisiana Space Consortium (LaSPACE).

"The Student Space Flight Experiments Program [or SSEP] is undertaken by the National Center for Earth and Space Science Education (NCESSSE), a project of the 501(c)(3) Tides Center, in partnership with Nanoracks, LLC. This on-orbit educational research opportunity is enabled through NanoRacks LLC, which is working in partnership with NASA under a Space Act Agreement as part of the utilization of the International Space Station as a National Laboratory."

Blast From the Past

(1985) CEE Professor Emeritus Mehmet Tumay with Mohammad Mohammadi (PhD) and Jean Canon (MS)

Have a picture from the past that you'd like to share with us? Email your high resolution photo, along with a brief caption, to jmueller@lsu.edu.



Dynamic Partnership Yields Expertise for Industry Leader to Enter New, Global Market

As one of the leaders in the engineered waste packaging industry, PacTec, Inc. sells custom-manufactured packaging. The company designs and manufactures packaging for the nuclear and hazardous waste industries.

Looking to expand its product lines, PacTec's research and development department began researching products that would complement its other product lines using similar materials and manufacturing processes. The company made a decision to enter the flexitank market.

A flexitank is a flexible container that converts a 20-inch standard shipping container into a bulk liquid shipping container. The benefits of shipping fluids in bulk in flexitanks are numerous. None are more important than higher payload possibilities with flexitanks lower tare weight, the actual, computed or estimated weight of the container, which results in lower freight costs and reduced packaging waste.

Having explored the market for some time, PacTec was ready to begin the arduous process of developing a product. Looking forward to testing its theories, Derrel Thomas, director of research and development, recognized the need for expertise related to fluid and slosh dynamics.

That is when Marshall Rice, director of flexitank operations, PacTec, turned to LSU's College of Engineering (CoE). "I was confident the College of Engineering had numerous resources available in the areas we needed expertise. It was just finding a way

to tap into this hidden resource," said Rice.

Within two weeks of contacting the CoE, Rice and the President of PacTec, Mike Schilling, had a meeting with four engineering professors and Sarah Schram, assistant director, research and economic development, CoE to identify how the College could assist PacTec with testing its design theories.

"We developed several models each with unique features and strapping configurations designed to reduce internal wave action during transit," said Rice. "We needed to know if the integrated strapping actually worked as we thought it would and if so which combination worked best."

Steve Cai, associate professor, civil and environmental engineering (CEE), and Michele Barbato, assistant professor, CEE, were able to provide PacTec with the expertise in fluid dynamics they were looking for to advance the development of its flexitank.

"It was an ideal arrangement for PacTec," said Schilling. "The most amazing part was that the College of Engineering had the piece of equipment to simulate and measure exactly what we needed, so that we could make critical decisions on product materials and integrated design features. The lab and equipment were readily available and allowed for testing within a very short time frame."

Schilling is referring to the shake table housed within the CoE. The table can simulate the six differ-



ent types of movements at sea, including: heave, surge, sway, roll, pitch and yaw. Simulating these types of movements allowed PacTec to evaluate what a flexitank could expect to encounter in the open seas. The materials could easily be pushed to their limits and evaluated rather than theorizing what could or could not happen.

"Assisting PacTec with testing its new flexitank product was an exciting venture for the College," said Cai. "This partnership was beneficial as we were able to combine resources to advance the development of the new product."

After Cai and Barbato analyzed the results of the different configurations, they provided the results to PacTec. The results of the modeling and testing provided data that was used to make design decisions, which helped the company pass an industry required rail impact test with the Association of American Railroads at its Transportation Technology Center in Pueblo, Colo.

"I can definitely say that without a doubt, had we not tested our theories as we did with the LSU College of Engineering, the outcome would have not been as favorable as it was," said Rice. "We were very pleased with the results and already have scheduled additional and much more rigorous rail testing at the TTCI center in Colorado in the next few months. We're confident we will successfully attain U.S. Rail Accreditation, which only three other companies have successfully completed."

CEE Graduate Student Research Conference

The Department of Civil and Environmental Engineering held a Graduate Student Research Conference in April 2011 to showcase the research work being performed by the students in CEE. Held in the Transportation Training & Education Center of the Louisiana Transportation & Research Center (LTRC) here on the LSU campus, students from the graduate program had an opportunity to participate in either oral presentations or poster sessions. Presentations were judged by a panel of their peers, along

with faculty and staff. The winners of both the oral and poster presentations will be announced soon and will be recognized at an upcoming CEE Faculty Meeting.

The Department would like to thank all of the conference participants and attendees, along with the conference committee members who worked diligently to organize the event. The committee looks forward to another successful conference next year!





Dr. George Z. Voyiadjis, Chair of and Professor in the Department of Civil and Environmental Engineering at Louisiana State University, was recently honored with the ASCE Associate Editor Award. Dr. Voyiadjis, was chosen as one of two recipients of this American Society of Civil Engineers award, recognizing his consistent and excellent service to ASCE publications and ASCE publication activities. Dr. Voyiadjis currently serves as the Associate Editor of the ASCE Journal of Engineering Mechanics, a position he held from 1997-1999 and has again been serving since 2005. He also is the founder and Chief Editor of the new ASCE Journal of Nanomechanics and Micromechanics, which will release its inaugural issue in March of 2011. Dr. Voyiadjis is also the recipient of the 2008 ASCE Nathan M. Newmark Medal.

Dr. Voyiadjis' research focuses on damage mechanics of materials, metal matrix composites, and ceramics, with emphasis on theoretical modeling, numerical simulation of material behavior, and experimental correlations. He has more than 220 peer-reviewed journal articles and 17 books, with his latest publication being *Damage Mechanics and Micromechanics of Localized Fracture Phenomena in Inelastic Solids*, of which he served as editor and which he co-authored Part I out of IV with Drs. Babur Deliktas and Peter I. Kattan.



Dr. Donald Dean Adrian, Professor in the Department of Civil and Environmental Engineering, coauthored the US Army Corps of Engi-

neers most highly cited paper within the past 10 years, as illustrated by Essential Science Indicators on the Web of Knowledge platform. The paper is titled "A Review of Potentially Low-Cost Sorbents for Heavy Metals". According to the Essential Science Indicators, the article was cited 638 since its publication in 1999. If the 2010 citations are included, the number is over 800. Senior author, Susan E. Bailey, received her MS in Environmental Engineering from LSU with Dr. Adrian as her major professor. Trudy J. Olin (now Estes), received her Ph.D. from LSU, with Dr. John Pardue as her major professor.



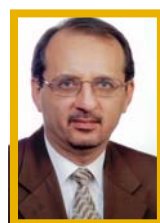
Dr. Zhiqiang Deng has received a research grant of \$150,000 from NASA Earth Science Division's Public Health Program for conducting a "Feasibility Study of Satellite-Assisted Detection and Forecasting of Oyster Norovirus Outbreaks." The project seeks to develop a Detection and Forecasting System (DAFS) for norovirus outbreaks in oyster growing regions of the Gulf Coast of Louisiana by combining NASA satellite data and Dr. Deng's modeling tools. This is a collaborative effort between LSU CEE Department and Louisiana Department of Health and Hospitals. The proposal was highly rated because "this is the first effort to use remote sensing technologies to determine norovirus probabilistic risk" and "DAFS has the potential to reduce decision making related to oyster producing areas from current 2-4 month intervals to 1 day." More information about the project can be found on Deng Research Group website: <http://www.cee.lsu.edu/people/Deng/index.html>



The small-scale physical model (SSPM), housed at the Vincent A. Forte River and Coastal Hydraulics Laboratory was featured in an article in the January 2011 issue of *Popular Mechanics*. The article, titled "Saving Louisiana", highlighted a number of engineering projects and studies currently underway aimed at reviving the stressed Louisiana coastal marshes. For more information or to arrange a visit to the SSPM, please contact Dr. Clinton S. Willson at cwillson@lsu.edu or 225-578-8672.



Dr. Mostafa Elseifi has been appointed as Associate Editor of the *Journal of Transportation Engineering*, American Society of Civil Engineers (ASCE). Dr. Elseifi has also begun serving a three-year term as a member of the Transportation Research Board (TRB) Technical Committee AFD40 - Full-Scale Accelerated Pavement Testing. Serving on this TRB committee, Dr. Elseifi will participate in identifying the research needs considered for funding by the National Cooperative Highway Research Program (NCHRP) and will allow him to contribute to advancing the state of knowledge and the state of the practice in transportation.



Dr. Louay Mohammad presented a keynote lecture titled *Mechanistic Characterization of Sustainable Materials for Pavement Infrastructure* at the 23rd Rhode Island Transportation Forum held on October 29, 2010 at the University of Rhode Island. The theme of the forum was Sustainable Transportation Infra-



Dr. Frank Tsai received funding to study saltwater intrusion in the Baton Rouge aquifer system. He and Jeffrey Hanor (Geology and Geophysics Department) were awarded \$279,317 from National Science Foundation-EAR for a project entitled "Modeling and Epistemic Uncertainty Analysis of Faults as Conduit-Barriers to Fluid Flow and Salinization in Siliciclastic Aquifer Systems", and \$217,645 from USGS-National Institutes for Water Resources to conduct a project entitled "Hierarchical Multimodel Saltwater Intrusion Remediation and Sampling Designs: A BMA Tree Approach." Dr. Tsai also received funding \$79,927 from the Capital Area Ground Water Conservation Commission and Baton Rouge Water Company to study saltwater intrusion reduction using scavenger wells. The project outcomes will assist actual scavenging designs for BRWC. His was also award an EDA from the LSU Graduate School for his saltwater intrusion study.

Dr. Frank Tsai was invited to present his saltwater intrusion mitigation techniques and findings to 24th Louisiana Water Quality Technology Conference (LWQTC) held in Alexandria and Baton Rouge in December 2010. His presentation was one of the seminars in LWQTC to provide 8-hour professional education for certified operators, engineers and other related professionals. Moreover, Dr. Tsai was interviewed and appeared to an article "Local agencies partner to protect water" in *The ADVOCATE* on November 8, 2010 for his critical study on the pressing saltwater intrusion issue in Baton Rouge.



Dr. John Pardue, along with Dr. Eugene Turner from the Department of Oceanography and Coastal Sciences, organized an environmental film series to spread awareness of the issues facing our society today. During February and March of this year, screenings the films *Troubled Waters*, *Gasland*, and *Waste Land* were held, providing students and faculty with the opportunity to view films on environmental topics not typically shown in theatres.

CEE Faculty Awards

At a recently held banquet, the LSU Department of Civil and Environmental Engineering recognized four outstanding faculty members for their contributions and dedication to the Department.



Dr. Sherif Ishak, Associate Professor and Undergraduate Coordinator, was awarded the 2011 Departmental Service Award. Dr. Ishak received this award for his three year and on-going service to the undergraduate programs, for which he has worked tirelessly to achieve the highest level of quality for the undergraduate educational programs for the Department.



Dr. C.S. Steve Cai, Professor in civil engineering, was awarded the 2011 Research Achievement Award. This award was bestowed on Dr. Cai for consistently showing significant results in his research program that have made impacts on local, national, and international engineering

knowledge and practice. Dr. Cai has attracted and mentored highly accomplished graduate students for their dissertation research and these students have gone onto successful careers of their own while representing the Department of Civil and Environmental Engineering and LSU in a positive light.



The 2011 Departmental Education Service Award was given to two recipients: Mr. Miles Williams and Mr. Jason Crain, both adjunct faculty members for the department. Both are professional licensed engineers in the State of Louisiana. Mr. Williams and Mr. Crain received this award for their service in the adjunct capacity in which they each delivered a high quality educational experience for undergraduate students enrolled in senior-level engineering project courses. The results of these contributions have been demonstrated by the increased number and quality of motivated and well-prepared students moving into their engineering careers. Their efforts are critical for the Department to bring real-world practical experiences to the students and for the Department's efforts to maintain its accreditation status while also balancing its commitments to provide the highest levels of teaching, research and service.

The LSU Department of Civil and Environmental Engineering congratulates this year's award recipients and sincerely thank them for their outstanding service.